

Nov. 27

Work Order ID 109283

November-18-13 12:39:39 PM

109283

Page 1

Item ID: D117-837-011

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Heli-Utility-Basket^{TMTM}, LH/RH

Start Date: 11/18/13 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 11/26/13 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: W Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
IIN-D117-837	A								
100	DOCUMENT CONTROL	0.00							
100									
DC	Memo	0.00							
Document Control	Photocopy bluefile & type labels per PPP D117-837-011 CHG001								
110	Pick Kit	0.00							
110									
Packaging	Memo	0.00							
Packaging									
120	QC4- 100% Inspect kits for completeness	0.00							
120									
QC	Memo	0.00							
Quality Control									

DAS
6
9-89

13/10/16

002
per ECN 13-670

1x

13-11-25

DAS
26
9-89


DAS
26
9-89

DAS
6
9-89

13/12/16

November-18-13 12:39:39 PM

Page 2

Rm 13/12/09. 

113-0-1

Picklist Print

November-18-13 12:39:38 PM

Page 1/4

Work Order ID: 109283

Parent Item: D117-837-011

Parent Item Name: Heli-Utility-Basket™™, LH/RH

Start Date: 11/18/13

Required Date: 11/26/13

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 13.03.28 NEW ISSUE DD VERF:JLM
837 REV.A DD VERF:JFS

IPP REV:B 13.06.21 IIN-D117-

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

~~D117-837-111~~
Basket Provision Mounting Installation, LH/RH

Manufactured No

Each 1.0000

109286

DAS
6
9-89

Location

Loc Qty

Loc Code

prelim

1

99253

1

~~D4784-011~~
Basket Assembly, Heavy Duty Lid, LH/RH

Manufactured No

Each 0.0000

109284

~~D4794-1~~

Manufactured No

Each 0.0000

1

Strut

~~D4911-1~~

Manufactured No

Each 1.0000

109283

Bracket

Location

Loc Qty

Loc Code

ST126

1

107752

1

~~D4911-3~~

Manufactured No

Each 1.0000

109285

Bracket

Location

Loc Qty

Loc Code

ST126

1

107753

1

Purchased No

Each 429.0000

13-11-25

~~DAS-24~~
Bolt

Remove
per
ECN
13-670

Location

Loc Qty

Loc Code

ST350

429

123831

7

124552

1

m126192

1

m126249

220

m127044

200

2x

DAS
26
9-89

DAS
26
9-89

DAS
26
9-89

Picklist Print

November-18-13 12:39:38 PM

Page 2

Work Order ID: 109283

Parent Item: D117-837-011

Parent Item Name: Heli-Utility-BasketTM, LH/RH

Start Date: 11/18/13

Required Date: 11/26/13

Start Qty: 1.00

Required Qty: 1.00

AN3-11A
Bolt

Purchased

No

Each

830.0000

2

DAS
26
9-89

DAS
6
9-89

Location

Loc Qty

Loc Code

ST351

492

m125709

492

ST512

338

115457

100

123352

200

123759

38

2 X

DAS
31
9-89

AN4-13A
Bolt

Purchased

No

Each

1,047.0000

4

DAS
26
9-89

DAS
6
9-89

Location

Loc Qty

Loc Code

FG

20

122808

20

ST356

50

m127432

50

ST511

969

m126193

969

ST514

8

m125709

8

4X

DAS
31
9-89

MS21042L3
Nut

MS21042L3

Purchased

No

Each

397.0000

4

DAS
26
9-89

Remove per
E.N.
13-670

Location

Loc Qty

Loc Code

ST313

397

123352

11

123525

386

4X

MS21069L3
ANCHOR NUT

Purchased

No

Each

110.0000

2

DAS
26
9-89

13-11-25

Location

Loc Qty

Loc Code

ST317

110

120362

34

m127255

76

2X

DAS
31
9-89

DAS
6
9-89

November-18-13 12:39:39 PM

Shop Packet Print

Page 2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: <u>109283</u> Part No. <u>D117-837-011</u> NCR No. _____	DISPOSITION Rework <input checked="" type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table border="0"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input checked="" type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input checked="" type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input checked="" type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design	12/10			Return to stock:	W 13-12-09	Updated to chg 002 per ECN 13-670 -ME 13-12-10	C 13/12/10	DAS 6 9-89 DEC 10 2013	DAS 27 9-89 13/12/10
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear	General		
<input type="checkbox"/> Bending	<input type="checkbox"/> Bend	<input type="checkbox"/> Folio/Program	<input type="checkbox"/> Outside Dimensions
<input type="checkbox"/> Centre Not Concentric	<input type="checkbox"/> BOM/Route	<input type="checkbox"/> Grain	<input type="checkbox"/> Over/Under tolerance
<input type="checkbox"/> Cracks	<input type="checkbox"/> Broken/Damage/Defect	<input type="checkbox"/> Hardware	<input type="checkbox"/> Part Incorrect
<input type="checkbox"/> Crimp/Kink/Ripple/Wave	<input type="checkbox"/> Burrs	<input type="checkbox"/> Inspection Incomplete/Unqualified	<input type="checkbox"/> Part Lost/Missing
<input type="checkbox"/> Cuffs	<input type="checkbox"/> Contamination	<input type="checkbox"/> Instructions Incomplete/Unclear	<input type="checkbox"/> Part Moved
<input type="checkbox"/> Crushing	<input type="checkbox"/> Countersink	<input type="checkbox"/> Misaligned/off center	<input type="checkbox"/> Positioned Wrong
<input type="checkbox"/> Heat Treat	<input type="checkbox"/> Cut Too Short	<input type="checkbox"/> Mislabeled	<input type="checkbox"/> Power Loss/Surge
<input type="checkbox"/> Inspection Strip in Tube	<input type="checkbox"/> Drawing	<input type="checkbox"/> Misread	<input type="checkbox"/> Pressure/Forced
<input type="checkbox"/> Marks/Chatter	<input type="checkbox"/> Drill Holes	<input type="checkbox"/> Off-set	<input type="checkbox"/> Set-up
<input type="checkbox"/> Turning Sequence	<input type="checkbox"/> Finish	<input type="checkbox"/> Out of Calibration	<input type="checkbox"/> Temperature/Cure
<input type="checkbox"/> Wave/Twist in Tube	<input type="checkbox"/> Fit/Function	<input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Weld
			<input type="checkbox"/> Wrong Stock Pulled
			<input type="checkbox"/> Other

DART SERVICE INSTRUCTION

**TO AMEND INSTALLATION INSTRUCTIONS IIN-D117-837 Rev. A AND
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D117-837 Rev. 0
REF. TCCA STC: SH13-22**

1.0 Purpose

The purpose of this Dart Service Instruction (DSI) is to upgrade the D4794-1 Strut that was provided with the D117-837-011 Heli-Utility-Basket at CHG 001 to a D4794-041 Strut Assembly for ease of installation and improved durability in service.

2.0 Installation of DSI 9676-011

- 2.1 Remove and discard existing D4794-1 Strut and D4911-1 Bracket. Discard the hardware used to attach the strut to the D4911-1/-3 Brackets. Refer to ICA-D117-837 Figures 25-4 and Figure 25-5.
- 2.2 Enlarge the hole to $\varnothing 0.261$ " (G drill) on D4911-3 Bracket. Remove bracket from airframe as required. Deburr hole.
- 2.3 Install new D4911-1 Bracket to D4784-011 Basket Assy per Figure 25-5 of ICA-D117-837.
- 2.4 Install D4794-041 Strut Assy to D4911-1/-3 Brackets, make adjustment to AN665-34R threaded clevises and lock with NAS509-4C jam nuts. Install D4794-041 Strut Assy using AN4-7 bolts, NAS1149F0463P washers, AN310C4 castellated nuts and secure with MS24665-151 cotter pins. Secure NAS509-4C Jam nuts using lock wire per AC43.13 or MS33540. AN4-7 bolt should be a slip fit in both ends of the strut assy. Refer to Figure 1 of this DSI.
- 2.5 After adjustment, use lockwire in hole of AN665-34R clevises to check for proper engagement of threads.

3.0 Updated Parts List

For D117-837-011 @ CHG 002, Parts List in ICA-D117-837 and IIN-D117-837 is updated as follows:

ADD

Qty -011	Part Number	Description
X	D117-837-011	HELI-UTILITY-BASKET, LH/RH
1	D4794-041	STRUT ASSEMBLY
2	AN310C4	NUT, CASTELLATED
2	AN4-7	BOLT
2	MS24665-151	COTTER PIN
4	NAS1149F0463P	WASHER

REMOVE




Qty -011	Part Number	Description
X	D117-837-011	HELI-UTILITY-BASKET, LH/RH
1	D4794-1	STRUT
2	AN3-3A	BOLT
4	NAS1149F0332P	WASHER
2	MS21042-3	NUT

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-Q-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 13.11.19
CERT. NO.: SH13-22
ISSUE NO.: 1

A	NEW ISSUE	RF	13.11.19
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED		DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9676	SHEET 1 OF 2
APPROVED		TITLE	SCALE
DE APPR.		BASKET STRUT UPGRADE	NTS
DATE	13.11.19	<small>COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

4.0 WEIGHT AND BALANCE

The following is the net weight increase associated with the Heli-Utility-Basket™ kits.

Installation	Weight	LATERAL		LONGITUDINAL	
		Arm	Moment	Arm	Moment
D117-837-011 (Heli-Utility-Basket™, LH Install)	116 lb 52.6 kg	-35.1 in -0.89 m	-4072 in-lb -46.8 m-kg	171 in 4.34 m	19836 in-lb 228.3 m-kg
D117-837-011 (Heli-Utility-Basket™, RH Install)	116 lb 52.6 kg	35.1 in 0.89 m	4072 in-lb 46.8 m-kg	171 in 4.34 m	19836 in-lb 228.3 m-kg
D117-837-111 (Basket Provision Kit, LH Install)	38.0 lb 17.2 kg	-12.7 in -0.32 m	-483 in-lb -5.5 m-kg	167.4 in 4.25 m	6361 in-lb 73.1 m-kg
D117-837-111 (Basket Provision Kit, RH Install)	38.0 lb 17.2 kg	12.7 in 0.32 m	483 in-lb 5.5 m-kg	167.4 in 4.25 m	6361 in-lb 73.1 m-kg

5.0 PARTS LIST

Qty -011	Qty -013	Qty -111	Part Number	Description
X			D117-837-011	HELI-UTILITY-BASKET, LH/RH
	X		D117-837-013	PROP ARM KIT
<u>1</u>		X	D117-837-111	BASKET PROVISION MOUNTING KIT
	1*		D2332-041	PROP ASSEMBLY (OPTIONAL)
	4*		D3953-9	WASHER
<u>1</u>			D4784-011	BASKET ASSEMBLY, HEAVY DUTY, LH/RH
		2	D4893-1	HARD POINT ADAPTER, LH
		2	D4893-2	HARD POINT ADAPTER, RH
		1	D4894-1	FWD BEAM
		1	D4894-3	AFT BEAM
		1	D4895-041	FWD OUTBOARD BEAM ASSY
		1	D4895-043	AFT OUTBOARD BEAM ASSY
<u>1</u>			D4794-1	STRUT
<u>1</u>			D4911-1	BRACKET
<u>1</u>			D4911-3	BRACKET
<u>2</u>			AN3-3A	BOLT
<u>2</u>			AN3-11A	BOLT
<u>4</u>			AN4-13A	BOLT
		4	AN4-17A	BOLT
		12	AN5-23A	BOLT
		12	MS20002C6	WASHER
<u>4</u>			MS21042-3	NUT
		4	MS21042L4	NUT
		12	MS21042L5	NUT
		12	MS21042L6	NUT
<u>2</u>			MS21069L3	ANCHOR NUT
		12	MS21250-06022	BOLT
<u>2</u>			MS27039-1-08	SCREW
<u>4</u>			NAS1097AD3-4	RIVET
	3*		NAS1149C0463R	WASHER (or AN960C416)
<u>4</u>		8	NAS1149D0416J	WASHER (or AN960JD416L)
		24	NAS1149D0516J	WASHER (or AN960JD516L)
		12	NAS1149D0616J	WASHER (or AN960JD616L)
<u>10</u>			NAS1149F0332P	WASHER (or AN960-10L)

* D2332-041 PROP ASSEMBLY & HARDWARE (OPTIONAL) TO REPLACE D3953-3 GAS SPRING

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Revision: A

Date: 13.05.30

DART SERVICE INSTRUCTION

**TO AMEND INSTALLATION INSTRUCTIONS IIN-D117-837 Rev. A AND
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D117-837 Rev. 0
REF. TCCA STC: SH13-22**

1.0 Purpose

The purpose of this Dart Service Instruction (DSI) is to upgrade the D4794-1 Strut that was provided with the D117-837-011 Heli-Utility-Basket at CHG 001 to a D4794-041 Strut Assembly for ease of installation and improved durability in service.

2.0 Installation of DSI 9676-011

- 2.1 Remove and discard existing D4794-1 Strut and D4911-1 Bracket. Discard the hardware used to attach the strut to the D4911-1/-3 Brackets. Refer to ICA-D117-837 Figures 25-4 and Figure 25-5.
- 2.2 Enlarge the hole to $\varnothing 0.261$ " (G drill) on D4911-3 Bracket. Remove bracket from airframe as required. Deburr hole.
- 2.3 Install new D4911-1 Bracket to D4784-011 Basket Assy per Figure 25-5 of ICA-D117-837.
- 2.4 Install D4794-041 Strut Assy to D4911-1/-3 Brackets, make adjustment to AN665-34R threaded clevises and lock with NAS509-4C jam nuts. Install D4794-041 Strut Assy using AN4-7 bolts, NAS1149F0463P washers, AN310C4 castellated nuts and secure with MS24665-151 cotter pins. Secure NAS509-4C Jam nuts using lock wire per AC43.13 or MS33540. AN4-7 bolt should be a slip fit in both ends of the strut assy. Refer to Figure 1 of this DSI.
- 2.5 After adjustment, use lockwire in hole of AN665-34R clevises to check for proper engagement of threads.

3.0 Updated Parts List

For D117-837-011 @ CHG 002, Parts List in ICA-D117-837 and IIN-D117-837 is updated as follows:

ADD

Qty -011	Part Number	Description
X	D117-837-011	HELI-UTILITY-BASKET, LH/RH
1	D4794-041	STRUT ASSEMBLY
2	AN310C4	NUT, CASTELLATED
2	AN4-7	BOLT
2	MS24665-151	COTTER PIN
4	NAS1149F0463P	WASHER

REMOVE

Qty -011	Part Number	Description
X	D117-837-011	HELI-UTILITY-BASKET, LH/RH
1	D4794-1	STRUT
2	AN3-3A	BOLT
4	NAS1149F0332P	WASHER
2	MS21042-3	NUT

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED
BY: 
D. SHEPHERD (DE # 02)

DATE: 13.11.19
CERT. NO.: SH13-22
ISSUE NO.: 1

A	NEW ISSUE	RF	13.11.19
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9676	SHEET 1 OF 2
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	BASKET STRUT UPGRADE	NTS
DATE	13.11.19	COPYRIGHT © 2013 BY DART AEROSPACE LTD	
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Work Order ID 109283

November 18-13 12:39:39 PM

109283

Page 1

Item ID: D117-837-011

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Heli-Utility-BasketTM, LH/RH

Start Date: 11/18/13 Start Qty: 1.00

1

Cust Item ID:

Required Date: 11/26/13 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: *W*

Date:

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

IIN-D117-837

A

100

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPP D117-837-011 CHG001

ML5 13-11-25

110

Pick Kit

0.00

110

Packaging

Memo

0.00

Packaging

1x

13-11-25

120

QC4- 100% Inspect kits for completeness

0.00

120

QC

Memo

0.00

Quality Control

OAS
26
9.88